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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/044,704	11/09/2001	Mary R. Reidmeyer	TOMC 8188US	7982

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EXAMINER

TUNG, TA HSUNG

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 03/27/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/044704

Applicant(s)

REDMEYER

BTAL

Examiner

T. TUNG

Group Art Unit

1753

Paper No. 5

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

2/3/03

- ☒ Responsive to communication(s) filed on _____
- ☒ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1, 3-9, 21, 22 is/are pending in the application.
- ☐ Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1, 3-9, 21, 22 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).
- ☐ All ☐ Some* ☐ None of the:
 - ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____
 - ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of Reference(s) Cited, PTO-892
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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Claims 1, 3, 5, 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Japan 4-95766.

Applicant argues that none of the prior art shows the structure now recited in claim 1, “body having a porous surface of greater porosity than an underlying matrix of the body, the porous surface comprising a plurality of recesses including smaller recess and larger recess, the larger recesses each being substantially spherical and having a small ball of solid electrolyte at its bottom, the first electrode substantially covering the first side of the body, the first electrode comprising a thin layer of conductive catalytic material extending into the larger and smaller recesses to mechanically lock the layer to the porous surface”. It is contended that the process which creates this structure is set forth at page 10 of the instant specification (particularly at lines 5-7), and none of the prior art discloses such a process.

This argument is not persuasive. Applicant’s process for providing the porous zirconia coating on the underlying body matrix involves treating the body with a slurry comprising zirconia power and spray-dried zirconia granules, the resulting coating is dried and then fired. However, Japan appears to disclose this very procedure (or one very similar to it) at page 10, lines 2-11 of the translation for forming a porous surface layer over the underlying body matrix. Since the Japan method and applicant’s method are virtually identical, Japan presumably would have a porous surface coating that has larger and smaller recesses with a larger recess being substantially spherical and having a small ball of solid electrolyte at its bottom.

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Further, since the procedure for preparing the electrode involves the formation of Pt nucleation sites and the subsequent electroless plating of Pt on the nucleation sites, and since this procedure is the same for both applicant and Japan, the resulting structure of Pt extending into the larger and the smaller recesses to mechanically lock the Pt electrode layer to the porous surface must also be true of Japan. That the Pt electrode layer enters both larger and smaller recesses to ensure adhesion is demonstrated by Katafuchi et al (see the claim), which discloses a method of forming the Pt electrode layer that is virtually the same as those of Japan and applicant. Katafuchi is used here as a demonstration reference, not as an anticipatory reference.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '766 in view of Ruka et al 3,400,054.

Applicant does not present a separate argument for this rejection. Thus, no further comment is needed.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '766 in view of Tanaka et al 4,225,634 or Topp et al 3,978,006.

Applicant does not present a separate argument for this rejection either.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '766 in view of Fujishiro et al 4,076,608.

This claim differs by calling for the solid electrolyte element to be tapered.

Fujishiro discloses a tapered solid electrolyte element. See figure 3; col. 2, lines 49-53. It would have been obvious for Japan to adopt a tapered solid electrolyte element in order to

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increase sensor sensitivity, increase life expectancy and lessen thermal shock, as discussed at col. 4, line 28 to col. 5, line 24 of Fujishiro.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Japan '766 in view of Watanabe et al 5,956,841 or Yamada et al 5,759,365.

This claim differs by calling for the sensor to have an electrical terminal extending from the outside to contact the sensor interior. The terminal has a pair of arms with at least one engaging the interior electrode, and the terminal arms embracing a heater for the sensor element.

Watanabe discloses such a structure. See figures 9A, 9B, 10A, 10B; col. 14, lines 2-41. Yamada also discloses such a structure. See figures 3 and 7; col. 5, line 18 to col. 7, line 33. It would have been obvious for Japan to incorporate a heater/electrical terminal structure of Watanabe or Yamada, because a heater is needed to control the temperature of the sensor element at a desired level. Ceramic solid electrolytes do not conduct sufficiently at lower temperature and would therefore not function. The heater/electrical terminal structure of the second references permits the heating function and the electrical connection to be provided by an efficient, unitary means.

Claims 1, 3, 5, 6, 8, 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al 5,716,507.

The argument here is the same as that made against Japan '766. That is, Tanaka does not disclose the structure wherein a Pt electrode layer mechanically interlocks with larger and smaller

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recesses in a porous surface layer on the solid electrolyte body. Also, there is no substantially spherical larger recess with a small ball at its bottom.

This argument is not persuasive here either. As with Japan '766, Tanaka discloses a method for forming the porous surface layer that appears to be virtually the same as applicant's process for forming the porous surface layer. See col. 8, lines 27-35 of the patent. Thus, the surface layer would presumably have larger and smaller recesses, with a larger recess having a small ball at its bottom.

Also, since the procedure for forming the Pt electrode involves the formation of Pt nucleation sites and the subsequent electroless plating of Pt onto the nucleation sites, and since this procedure is the same for Tanaka and applicant, the Pt in the patent must interlock with the larger and smaller recesses. This fact is demonstrated by Katafuchi (see the claim), which discloses a procedure for forming the Pt electrode layer that is identical to those of Tanaka and applicant.

Claims 4, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al '507 in view of Ruka et al.

No separate argument has been presented for this rejection.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al '507 in view of Fujishiro et al.

This claim differs by calling for the solid electrolyte element to be tapered. As discussed before, Fujishiro renders that obvious.

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Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al '507 in view of Watanabe et al or Yamada et al.

This claim differs by calling for a particular heater/electrical terminal structure. As discussed before, such a structure is rendered obvious by Watanabe or Yamada.

The citation of Fujishiro, Watanabe and Yamada is prompted by applicant's Feb. 3, 2003 response, which introduced new claims 21 and 22.

Applicant is reminded that he should submit copies of those non-US patent prior art cited in his IDS that have not been submitted to complete the record.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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The examiner can be reached at 703-308-3329. His supervisor Nam Nguyen can be reached at 703-308-3322. Any general inquiry should be directed to the receptionst at 703-308-0661. A fax number for TC 1700 is 703-872-9311.



Ta Tung

Primary Examiner

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